

Amendments to the Claims

45. (Twice Amended) An apparatus for generating oscillatory air pulses in a bladder positioned about a person, comprising:

a pressure generator comprising an oscillatory air flow generator and a continuous air flow generator, the pressure generator providing a positive pressure and an oscillatory pressure;

the oscillatory air flow generator comprising:

an air chamber;

a reciprocating diaphragm operably connected with the air chamber; and

a first motor operably connected with the reciprocating diaphragm;

the continuous air flow generator operably connected with the oscillatory air flow generator;

a frequency-compensation feedback system operably connected with the pressure generator, wherein the frequency-compensation feedback system maintains an oscillation frequency at a predetermined value; and

a pressure-compensation feedback system operably connected with the pressure generator, wherein the pressure-compensation feedback system maintains the positive pressure at a predetermined value.

65. (Amended) The apparatus of claim 61 wherein the pressure-compensation feedback system adjusts the positive pressure by changing the output of the continuous air flow generator.

66. (Amended) The apparatus of claim 65 wherein a pressure of the output of the continuous air flow generator is reduced.

67. (Amended) The apparatus of claim 65 wherein a flow of the output of the continuous air flow generator is reduced.

68. (Amended) The apparatus of claim 67 wherein the flow of the output is reduced by flowing air out of the continuous air flow generator.

69. (Amended) The apparatus of claim 65 wherein the output of the continuous air flow generator is independent of the oscillation frequency.

72. (Amended) The apparatus of claim 70 wherein the frequency-compensation feedback system detects the oscillation frequency by detecting a speed of the first motor.

77. (Amended) The apparatus of claim 70 wherein the frequency-compensation feedback system adjusts the oscillation frequency by changing a speed of the first motor.

78. (Twice Amended) An apparatus for generating oscillatory air pulses in a bladder that is positioned about a person and that has an air leakage associated therewith, comprising:

a pressure generator comprising an oscillatory air flow generator and a continuous air flow generator, the pressure generator providing a positive pressure and an oscillatory pressure;

the oscillatory air flow generator comprising:

an air chamber;

a reciprocating diaphragm operably connected with the air chamber; and

a first motor operably connected with the reciprocating diaphragm;

the continuous air flow generator operably connected with the oscillatory air flow generator, the continuous air flow generator being in continuous pneumatic communication with the bladder to compensate for the air leakage;

a frequency-compensation feedback system operably connected with the oscillatory air flow generator, wherein the frequency-compensation feedback system maintains an oscillation frequency at a predetermined value; and

wherein the continuous air flow generator maintains the positive pressure at a predetermined value irrespective of the repeated inhalation and expiration of the person.

79. (Amended) The apparatus of claim 78 wherein the continuous air flow generator dynamically adjusts and controls the positive pressure to allow repeated inhalation and expiration of the person.

86. (Amended) The apparatus of claim 85 further comprising at least one tube operably connecting the bladder to the pressure generator.

90. (Twice Amended) An apparatus for generating oscillatory air pulses in a bladder positioned about a person, comprising:

a pressure generator comprising a control panel, an oscillatory air flow generator and a continuous air flow generator;

the control panel for user-selection of operating parameters;

the pressure generator providing a positive pressure and an oscillatory pressure, the positive pressure about ambient pressure;

the oscillatory air flow generator comprising:

an air chamber;

a reciprocating diaphragm operably connected with the air chamber, the reciprocating diaphragm comprising a seal extending from the outer periphery of the reciprocating diaphragm to a wall of the air chamber; and

a first motor operably connected with the reciprocating diaphragm;

wherein the first motor has a shaft mechanically connected to the reciprocating diaphragm;

wherein rotation of the shaft reciprocates the reciprocating diaphragm in a cycle;

wherein each cycle of the reciprocating diaphragm displaces a fixed volume of air;

wherein the reciprocating diaphragm causes pressure changes inside the air chamber in comparison to ambient pressure;

wherein a majority of the fixed volume of air is moved into and out of the bladder during each cycle;

the continuous air flow generator operably connected with the oscillatory air flow generator;

a frequency-compensation feedback system operably connected with the pressure generator, wherein the frequency-compensation feedback system maintains an oscillation frequency at a predetermined value between about 5 Hz to about 25 Hz;

wherein the pressure generator dynamically adjusts and controls the positive pressure to allow repeated inhalation and expiration of the person;

wherein the pressure generator dynamically adjusts and controls the positive pressure to maintain the positive pressure at a predetermined value irrespective of the repeated inhalation and expiration of the person;

a vest comprising a bladder, the vest for placement around a torso of the person, the bladder positioned such that expansions and contraction of the bladder occur generally adjacent to torso of the person;

at least one tube operably connecting the bladder to the pressure generator;

wherein the bladder causes oscillatory compression of the torso of the person;

wherein mucus from lungs of the person is loosened and expulsion of the mucus is assisted; and

wherein treatment is initiated by placing the vest around the torso of the person and selecting operating parameters on the control panel without further interaction required by the person with the apparatus.

91. (Twice Amended) An apparatus for generating oscillatory air pulses in a bladder that is positioned about a person and that has an air leakage associated therewith, the apparatus comprising

a pressure generator comprising an oscillatory air flow generator and a continuous air flow generator, the pressure generator providing a positive pressure and an oscillatory pressure;

the oscillatory air flow generator comprising:

an air chamber;

a reciprocating diaphragm operably connected with the air chamber; and

a first motor operably connected with the reciprocating diaphragm;

the continuous air flow generator operably connected with the oscillatory air flow generator, the continuous air flow generator being in continuous pneumatic communication with the bladder to compensate for the air leakage;

wherein the oscillatory pressure has an oscillation frequency, wherein the pressure generator controls the oscillation frequency; and

wherein the pressure generator maintains the positive pressure at a predetermined value irrespective of the repeated inhalation and expiration of the person.

101. (Twice Amended) A method for generating oscillatory air pulses in a bladder that is positioned about a person and that has an air leakage associated therewith, comprising:

providing a generator comprising:

an air chamber;

a reciprocating diaphragm operably connected with the air chamber; and

a first motor operably connected with the reciprocating diaphragm;

generating an oscillatory air pressure and a positive air pressure with the generator, the oscillatory air pressure having an oscillation frequency;

maintaining the oscillation frequency with the generator to a first predetermined value;

maintaining continuous communication of the positive air pressure with the bladder to allow repeated inhalation and expiration of the person and to compensate for the air leakage; and

continuously maintaining the positive air pressure with the generator to a second predetermined value irrespective of the repeated inhalation and expiration of the person and independent of the air leakage.